UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

NEODRON LTD., Plaintiff, v. DELL TECHNOLOGIES INC., Defendant.	Case No. 1:19-cv-00819-ADA
NEODRON LTD., Plaintiff, v. HP, INC., Defendant.	Case No. 1:19-cv-00873-ADA
NEODRON LTD., Plaintiff, v. MICROSOFT CORPORATION, Defendant.	Case No. 1:19-cv-00874-ADA

NEODRON LTD., Plaintiff, v. AMAZON.COM, INC., Defendant.	Case No. 1:19-cv-00898-ADA
NEODRON LTD., Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS AMERICA, INC., Defendant.	Case No. 1:19-cv-00903-ADA

PLAINTIFF NEODRON LTD.'S OPENING CLAIM CONSTRUCTION BRIEF FOR GROUP 3 – TOUCH PROCESSING PATENTS

TABLE OF CONTENTS

TABLE OF EXHIBITS AND ABBREVIATIONS

Ex [1]	Document Description	Abbreviation
1	Declaration of Richard A. Flasck in support of Neodron Ltd's opening claim construction briefs.	Flasck. Decl.
2	Curriculum Vitae of Richard A. Flasck	
8	U.S. Patent No. 8,102,286	'286 Patent
9	U.S. Patent No. 10,365,747	'747 Patent
21	Order from the United States International Trade Commission construing relevant terms dated November 25, 2019	ITC Markman Order
22	Transcript from a *Markman* hearing before the United States International Trade Commission pertaining to relevant terms dated October 22, 2019	ITC Markman Hearing Tr.
31	U.S. Patent No. 9,024,790 Philipp	'790 Patent

[1] A complete set of exhibits are attached to the declaration of Reza Mirzaie filed with Neodron's opening claim construction brief for Group 1 – Touch Sensor Patents. Only the exhibits referenced in this brief are listed in this table.

This is Neodron's opening claim construction brief for Group 3 – Touch Processing Patents. It addresses the disputed terms for U.S. Patent Nos. 8,102,286 ("'286 patent") and 10,365,747 ("'747 patent"). Neodron incorporates the introduction and claim construction standards from its opening brief for Group 1 – Touch Sensor Patents.

I. BACKGROUND OF TOUCH PROCESSING PATENTS[2]

A. The '286 Patent

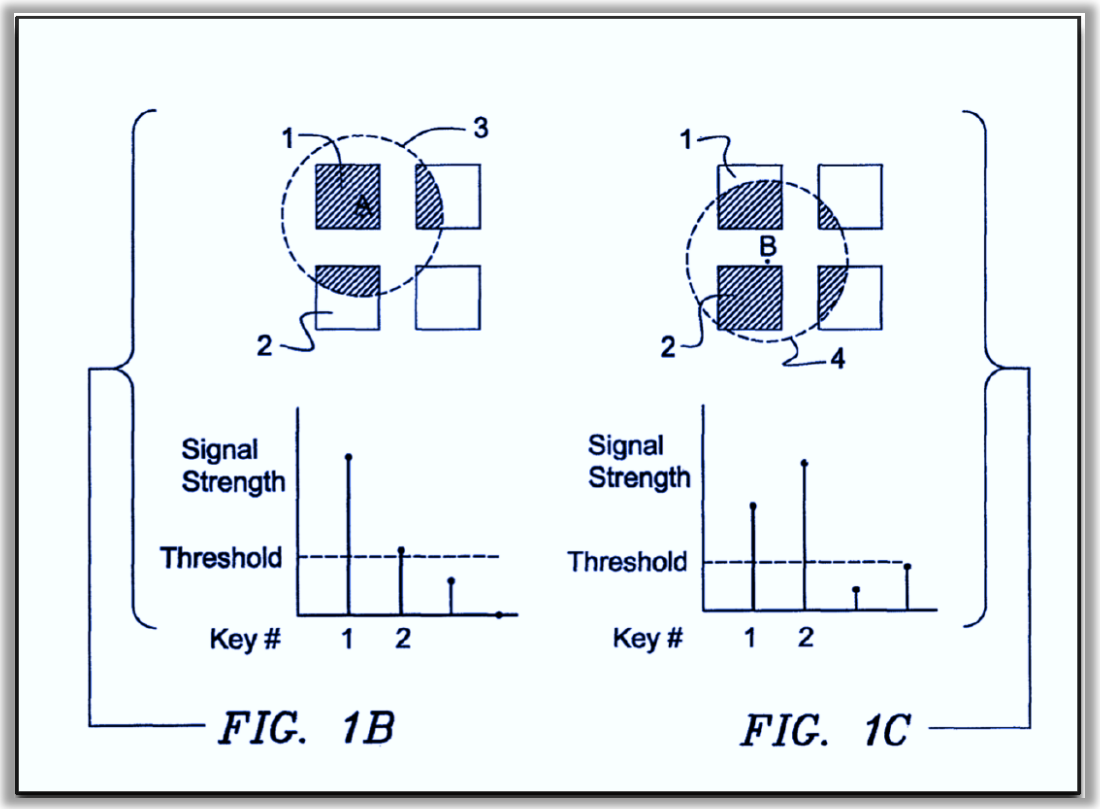
The '286 Patent is entitled "capacitive keyboard with non-locking reduced keying ambiguity." It describes techniques for processing information from touch-sensitive keyboards to identify which key a user intended to select. '286 patent at Abstract.

Physical keyboards use mechanical switches that a user depresses to select a key. A proficient typist using such a keyboard will naturally depress only one key at a time, which causes the switch associated with that key to close—unambiguously signaling the selected key. But with the advent of touch-sensitive keyboards, and especially touchscreen keyboards, problems of ambiguous key detection emerged. For example, touch sensing technology allowed product designers to create on-screen keyboard with small keys that can be difficult to select accurately. But with those keyboards, a user's finger may touch multiple keys at once, making it unclear which key(s) were intended. *See* '286 patent at 1:37-41 ("In a small keyboard, for example, a user's finger is likely to overlap from a desired key to onto adjacent ones. This is especially problematic if the user has large fingers or if he or she presses on the keyboard surface hard enough to deform his or her finger."). Further, moisture or liquid on the touch screen may create further ambiguity for the

The '286 patent gives an example of keying ambiguity resulting from inaccurate or overlapping touches.

[2] For further technology background *see* Flasck Decl.

In Figures 1B and 1C, the ’286 patent shows two example scenarios where a user’s touch overlaps multiple keys and creates ambiguity:



In Figure 1B, the user’s touch is at position A, which is close to key 1. In Figure 1C, the user’s touch is at position B, which is still near key 1 but is closer to key 2. The patent teaches that each of these situations may be interpreted as a certain pattern of signal strength for the various keys, depicted at the bottom of the figures. In Figure 1B, the signal strength for key 1 is much higher than key 2; in Figure 1C, the signal strength for key 2 is higher than key 1, but to a much smaller degree. *See id.* at 5:1-40. The ’286 recognizes the problem of chatter and prevents it by “biasing” to an already selected key. “If the key selection method operates solely by picking a maximum signal strength, the keyboard may be subject to an undesirable rapid switching back and forth between two keys having nearly identical signal strengths (e.g., fingerprint areas). This sort

of 'chatter' is preferably prevented by biasing or skewing the key selection method to favor an already selected key." *Id.* at 5:41-47.

As applied to Figures 1B and 1C, the simple "maximum signal strength" method would select key 1 for the Figure 1B situation and select key 2 for the Figure 1C situation. But these selections would be incorrect if the user intended to select key 1 in both cases but moved or missed, causing the Figure 1C signal pattern. An embodiment of the "biasing" method taught by the patent might determine that key 1 is the selected key, and subsequently bias the selection method in favor of key 1. This would select key 1 in both cases and match what the user intended.

B. The '747 Patent

The '747 patent is titled "Touch-sensing panel and force detection." It describes a touch position sensor with force detection circuitry for determining the amount of force applied to the touch panel. '747 patent at Abstract. In one embodiment, the touch sensor uses a "mutual capacitance" configuration that consists of two layers of horizontal and vertical conductors that intersect at nodes. *Id.* at 1:39–43. When an object (such as a finger) touches the surface of the panel, a change in capacitance occurs at one or more of the nodes. *Id.* at 1:50–55. This allows the touch sensor to determine (a) that touch has occurred and (b) the location of the touch. *Id.*

These concepts are illustrated in annotated Figure 2 below. In the figure, the horizontal layer "drive electrodes 4X" and vertical "sense electrodes 5Y" crossover at "intersections 11" *Id.* at 3:38–43. The drive electrodes and sense electrodes are connected via "connecting lines" to "control unit 20." *Id.* at 3:44–50. Using those lines, the control unit senses the changes in capacitance at each intersection to detect the presence and location of touches. *Id.* at 3:51–62.

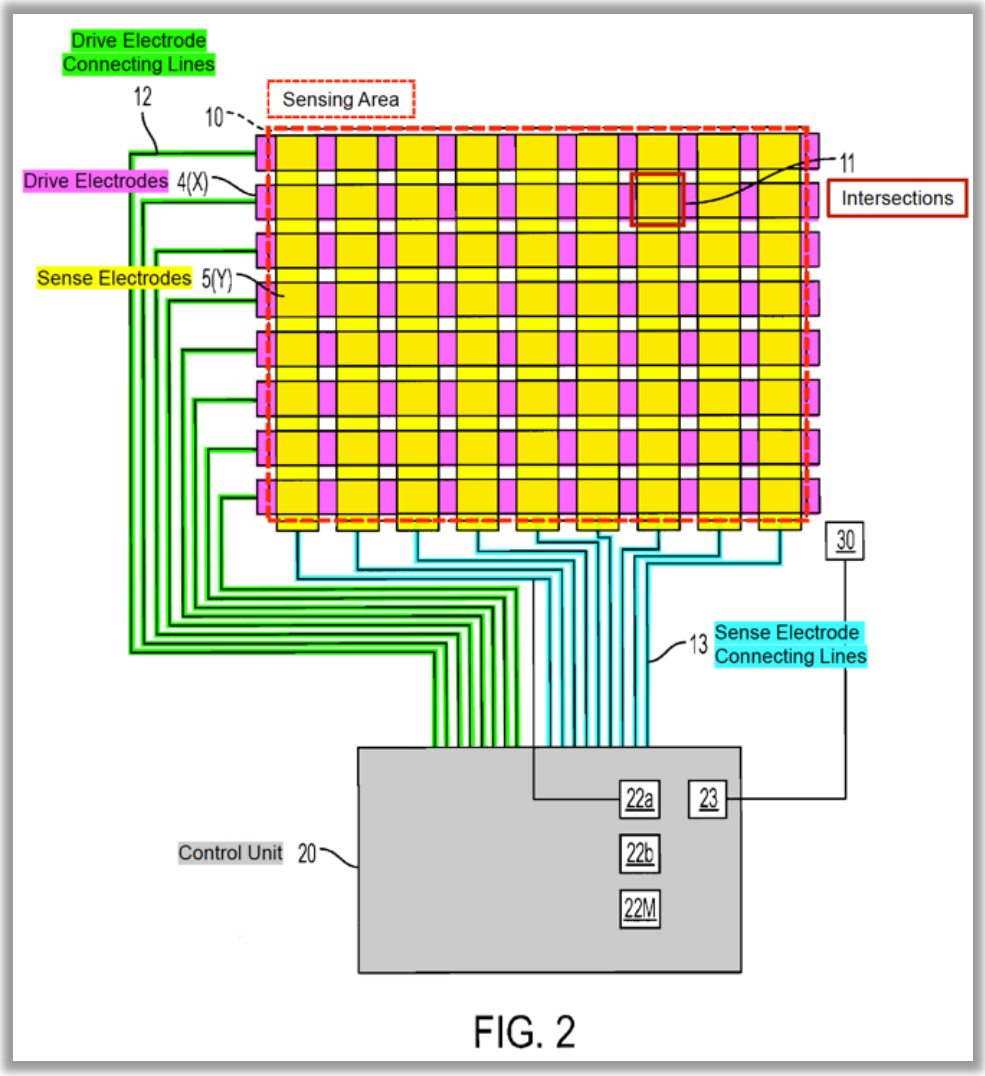


FIG. 2

The '747 patent touch sensor includes an associated "force sensor" that measures the amount of force applied to the panel. *Id.* at 4:6–13. The force sensor distinguishes between different touch events, such as a soft touch or firm press. *Id.* at 4:13–14. The force sensor can compare amount of force detected against a threshold and execute different functions depending on whether it exceeds the threshold. *Id.* at 4:15–19.

The '747 patent is directed to a ***resistive*** force sensor by describing "a *resistive* force sensitive element" that "can be used to measure the amount of force applied to the panel." ." *Id.* at 4:20–22. This corresponds to the "variable resistance electrode" recited in the claims. A resistive force sensor measures force by measuring changes in resistance of material. This works because

the resistance of the material depends on the amount of force applied. If enough force is applied, the resistance decreases; if little or no force is applied, the resistance remains the same.

The '747 patent claims a mobile electronic device with a novel combination of elements, including a display and related components, capacitive touch sensor, resistive force sensor, and force sensor circuitry with an integrator circuit and voltage driver. *Id.* at cls. 10, 16. Figure 1 shows the touch panel and display in an exemplary embodiment:

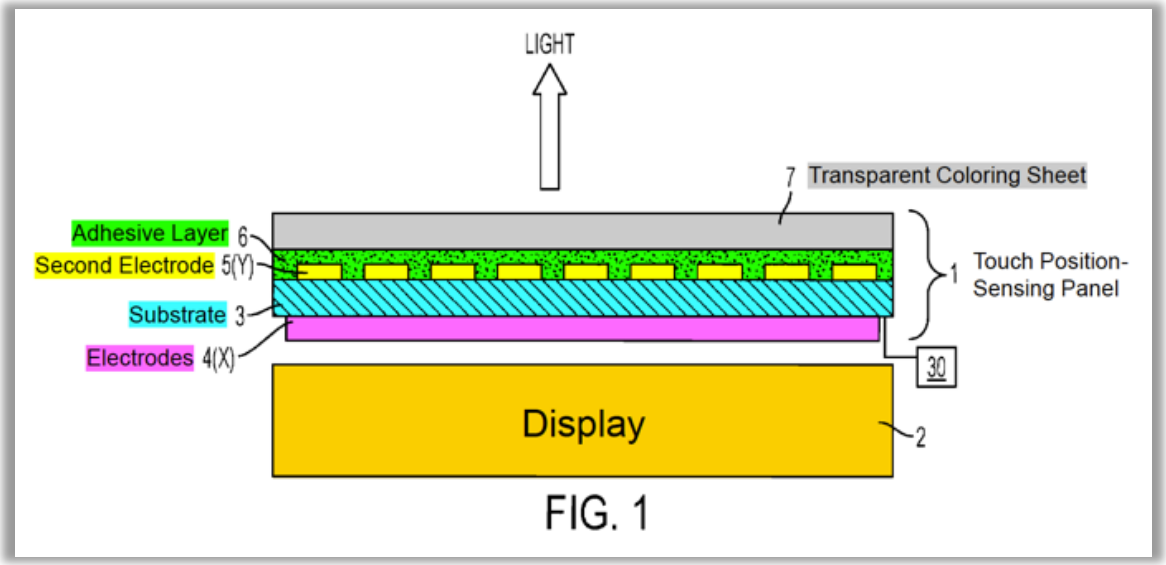


FIG. 1

II. DISPUTED TERM FOR THE '286 PATENT

A. "sensor value(s)" ('286 Patent, claims 1, 3–5, 8–10, 12–13, 15–17, 20–21, 23–24)

Neodron's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning, which is "sensor **signal** value(s)."	Plain and ordinary meaning, i.e. "value **indicating the strength** of the sensor signal."

As reflected in the table, the parties agree that "sensor value(s)" at least means "value of a sensor signal"—i.e., sensor signal value. That is the plain meaning of the term. The sole dispute here is whether the Court should rewrite the plain meaning by inserting additional language "indicating the strength of." The Court should not.

This dispute largely mirrors a dispute that was already resolved in ITC Investigation No. 337-TA-1162 involving the same parties (Neodron vs. Amazon, Dell, HP, Lenovo, Microsoft, Motorola, and Samsung) and a related patent (U.S. Patent No. 9,024,790). The '790 patent is a continuation of the '286 patent, and shares the same specification and much of the same claim language—including the term "sensor values." In the ITC case, Defendants argued that "sensor values" in the related '790 patent should be construed as "sensor ***outputs***." And Neodron proposed that it should be construed as "sensor signal values"—i.e., the same as Neodron's proposal here. ITC Markman Order at 27. ALJ Elliott rejected Defendants' arguments and adopted Neodron's proposal of "sensor signal values. " *Id.* at 28.

Defendants—perhaps knowing that they cannot reasonably propose what was expressly rejected at the ITC—now propose a slightly different construction. But Defendants' two proposals—"value indicating the ***strength*** of the sensor signal" here, and "sensor ***output***" in the ITC—implicate the same issue: whether the plain term "sensor value" embodies more than just the output of a sensor (i.e., the strength of the sensor signal). Indeed, Defendants' counsel at the ITC *Markman* hearing largely equated the "strength" with "output":

> "[Defendants' Counsel:] So you can see if you look at the signal ***strength*** comparison at the bottom, that's what's being done in the compare logic that we just saw in that hardware diagram, we're comparing a really large signal ***strength output*** from key 1."

Markman Hearing Tr. at 89 (emphasis added).

But ALJ Elliott squarely held that Defendants' proposal was too limiting because "the term 'values' [in 'sensor values'] *embodies more than just the output of the sensor*." ITC Markman Order at 28. In so holding, ALJ Elliot agreed with Neodron that "the claim could encompass additional, unclaimed processing steps, and components to perform them, including 'any

processing, ***amplification***, thresholding, smoothing, noise reduction, whether it is that's done in the process of comparing' the values to determine which key is pressed." *Id.* (emphasis added).

ALJ Elliott's reasoning about "amplification" in the ITC Markman Order is instructive and directly contradicts Defendants' "strength of the sensor signal" language here. This is because "amplification" directly increases the strength of a sensor signal. Thus, the plain meaning of "sensor values" ***cannot*** be limited to the "strength of the sensor signal" because "sensor values" encompasses values that may later be amplified (or reduced, for that matter). This is exactly what ALJ Elliott recognized in his order and in the following discussion at the *Markman* hearing:

> [Neodron's Counsel:] But more broadly, the claim shouldn't be limited to exclude outputs -- to exclude any processing, amplification, thresholding, smoothing, noise reduction, whatever it is that's done in the process of comparing those values or analyzing those values to determine a winner, because there has been no clear and unmistakable disclaimer of such processing.
>
> JUDGE ELLIOT: Okay. I understand your point, yes. So you're saying that just looking at that figure 4, there could be other components in there, like ample -- I think **amplifiers** is a good example.
>
> [Neodron's Counsel:] Exactly.
>
> JUDGE ELLIOT: Because the signal may not be ***strong enough***.
>
> [Neodron's Counsel:] Exactly.

Markman Hearing Tr. at 100-101 (emphasis added). As this discussion shows, "strength" is not the key metric in a "sensor value." Indeed, a signal that is not "strong enough" can still be a "sensor value." Defendants' here proposal should be rejected, just as the ALJ has rejected Defendants' arguments in the ITC case involving the same term in a related patent. Neodron's construction is the plain meaning and should be adopted.

III. DISPUTED TERM FOR THE '747 PATENT

A. "to measure a parameter of the first variable resistance electrode" ('747 Patent, claims 10, 16)

Neodron's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning; no construction necessary: "to measure a ***parameter*** of the first variable resistance electrode."	Plain and ordinary meaning: "to measure a ***value determined by the resistance*** of the first variable resistance electrode."

Independent claims 10 and 16 of the '747 patent recite the following longer claim phrase encompassing the disputed term (in italics):

> a first variable resistance electrode coupled to an output of the voltage driver and an input of the integrator circuit, wherein the integrator circuit is configured t*o measure a parameter of the first variable resistance electrode*

Thus, the claims recite that the integrator circuit is configured to "to measure a parameter of the first variable resistance electrode." Notably, the parties agree on the construction of the term "first variable resistance electrode": it means "first electrode in which the resistance of the material varies in relation to applied force." Email Agreement. Thus, the dispute is limited to the first portion of the term: "to measure a parameter of."

But this simple phrase has a plain meaning, is readily understandable to a POSITA, and does not require further construction. The Court should not re-characterize it using different words. *See Mentor H/S, Inc. v. Med. Device All., Inc.*, 244 F.3d 1365, 1380 (Fed. Cir. 2001) ("the court properly instructed the jury that these terms should receive their ordinary meanings"); *O2 Micro Int'l v. Beyond Innovation Tech*. 521 F.3d 1351, 1362 (Fed. Cir. 2008) ("district courts are not (and should not be) required to construe every limitation present in a patent's asserted claims").

Indeed, Defendants construction amounts to changing the word "parameter" to the five-word phrase "value determined by the resistance." But that is not the plain meaning of "parameter," and Defendants cannot point to any disclaimer or lexicography. The specification and prosecution

history do not attach any special definition to "parameter," and the claims use it in its ordinary sense. A POSITA and even the jury would easily understand what it means.

Defendants' construction is also incorrect and improperly limiting. It imposes requirements for (1) the parameter to be "value"; (2) that value to be "determined"; and (3) that that value to be determined based on "a resistance." None of these are required by the plain meaning of "parameter." For example, a parameter is not necessarily determined, much less determined by a resistance. Defendants' proposal is also inappropriate because the term already recites that the parameter is "measured" (not determined). And any concept of resistance is already reflected in the term "first variable resistance electrode." There is no need to redefine "parameter" to include those concepts, particularly in the incorrect way Defendants propose.

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Respectfully submitted,

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